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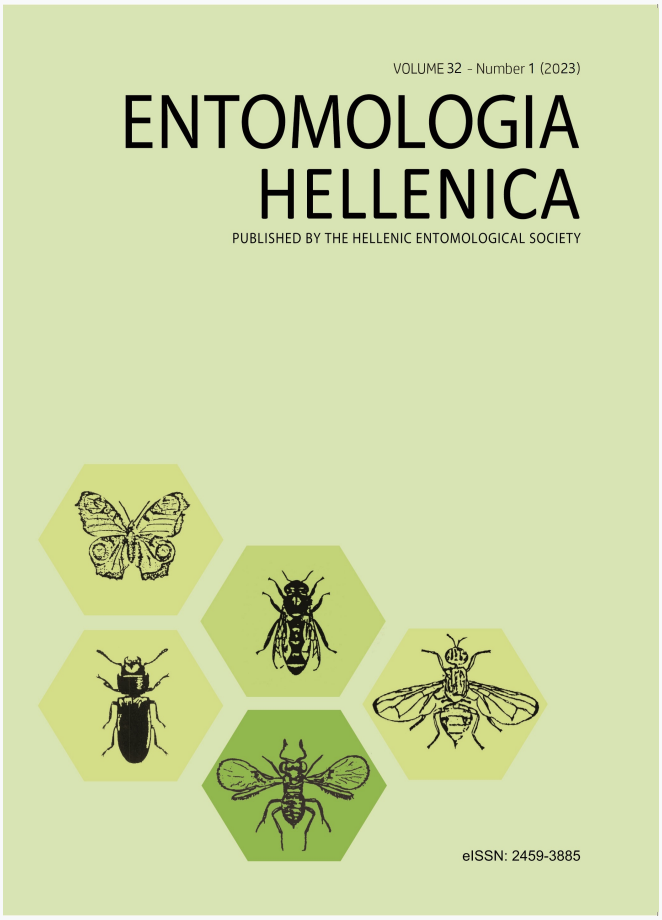

First record of the Lycian Bright Bush-Cricket Poecilimon inflatus lyciae (Orthoptera: Tettigoniidae) in Greece

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First record of the Bright Bush-Cricket *Poecilimon inflatus lyciae* (Orthoptera: Tettigoniidae) from Greece

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ABSTRACT

The Bright Bush-Cricket, *Poecilimon inflatus lyciae* is reported for the first time from Greece in the island of Kastellorizo (Dodecanese). The study contributes to the knowledge of the biodiversity of Kastellorizo archipelago, which remains widely understudied.

KEY WORDS: Barbitistini, entomofauna, Kastellorizo, Phaneropterinae.

Introduction

Poecilimon Fischer, 1853 is one of the largest genera within the Tettigoniidae, with a total of 145 species currently described (Cigliano et al. 2022). Bush-crickets belonging to this genus are distributed across the Palearctic, from Italy, central and southeastern Europe to central Asia (Bey-Bienko 1954). The Aegean region forms the core of the genus range; Greece in particular, is at the forefront of *Poecilimon* diversity in Europe, with 45 representatives recorded across the country (Willemse et al., 2018; Lemonnier-Darcemont & Daremont, 2020).

Based on molecular, morphological and bioacoustic criteria, two subgenera and 17 species groups are distinguished within *Poecilimon*, with many taxa still requiring allocation to a group (Cigliano et al. 2022). One of the species groups is the *Poecilimon jonicus* group which includes species sharing similarities in morphology and song structure (Heller 1984, 1988, 2004). Recently the evolution within this group and its correlation to paleogeographic events was studied by Borissov et al. (2020). The molecular phylogenetic analyses of the above study confirmed the composition of the group, indicated a robust phylogeny and revealed links between the evolution of this group and paleogeographical events of the Aegean. The *Poecilimon jonicus* group currently encompasses 11 species, including taxa transferred from the former *Poecilimon inflatus* group, which no longer exists (Kaya et al., 2018; Borissov et al., 2020). In Greece, six species of the *P. jonicus* group are present: *P. cretensis* Werner, 1903 from Crete and some of the Cyclades islands, *P. erimanthos* Willemse & Heller, 1992 from the area around Mt. Erymanthos in the Peloponnese, *P. jonicus* (Fieber, 1853) from the western mainland and some Ionian islands, *P. laevissimus* (Fischer, 1853) from the western Peloponnese, some Ionian islands and a few fragmented areas in Central Greece, *P. tessellatus* (Fischer, 1853) from the Peloponnese, and *P.*

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werneri Ramme, 1993 from the southwestern edge of the Greek mainland and northwestern Peloponnese (Fig. 1).

Except for *P. superbus*, which is restricted to Italy, the other four species belonging to the *P. jonicus* group (*P. antalyaensis*, *P. inflatus*, *P. isopterus* and *P. martinae*), occur in southwestern Anatolia. Here we report *P. inflatus* for the first time from Kastellorizo, one of the islands of the Dodecanese, in Greece.

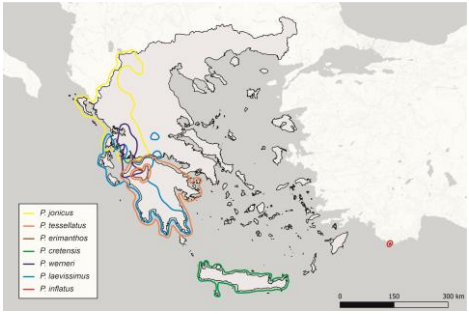

FIG. 1: Distribution of the members of the *Poecilimon jonicus* group in Greece. The range of *P. inflatus lyciae*, which is herein reported from the country for the first time, is shown in red.

Materials and Methods

On May 4th, 2017, two individuals of *Poecilimon* sp. were recorded and photographed near the settlement of Megisti in Kastellorizo, in an area covered with typical Mediterranean low-lying shrubs (phrygana), but no specimen was collected at the time. A few years later, on May 27th, 2022, the island was surveyed again, and three *Poecilimon* individuals were collected from Palaiokastro. Once again, the specimens were found in an area covered with phrygana. Afterwards, all collected specimens and photographic material were identified based on the determination key by Kaya et al. (2018) and were deposited in the collection of Naturalis Biodiversity Center (RMNH).

Results

The three collected specimens and the two previously photographed individuals were identified as *P. inflatus lyciae*. The diagnostic characters used for distinguishing *P. inflatus lyciae* from its allies are the following: the number of stridulatory teeth is higher than 100; the male cerci are almost straight; the female subgenital plate has a widely rounded posterior margin; and the male paraproct is almost straight at the posterior margin (Fig. 2, Kaya et al. 2018).

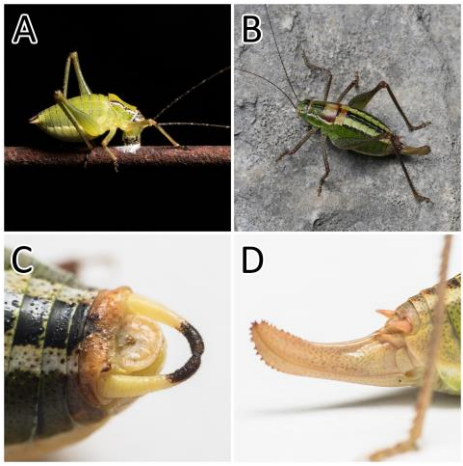

FIG. 2: Individuals of *P. inflatus lyciae* found in Kastellorizo, Greece. Depicted are a last instar juvenile male (A) and a female (B) specimen found on 4 May 2017, as well as close-ups of the male cerci (C) and the female ovipositor (D) from two specimens collected on 27 May 2022. Photos by K. Kalaentzis.

Poecilimon inflatus lyciae

Kaya & Çiplak, 2018

GREECE – Dodecanese, Kastellorizo: Kastellorizo (Megisti); N 36.146526˚, E 29.591032˚; 4.V.2017, K. Kalaentzis & C. Kazilas obs.; 1♂ 1♀; direct sighting (Fig. 2A, 2B); Palaiokastro; N 36.1482859˚, E 29.5769310˚; 27.V.2022, P. Drakopoulos

leg.; 2♂ 1♀(RMNH). Material has been deposited in the collection of Naturalis Biodiversity Center (RMNH).

Discussion

The discovery of *P. inflatus lyciae* on Kastellorizo raises the number of *P. jonicus* species group representatives in Greece to seven, and the overall number of *Poecilimon* species in the country to 46.

Despite the fact that the description of *P. inflatus* took place over 100 years ago (Brunner von Wattenwyl 1891), there is still limited to zero information on the ecology or biology of this taxon. The majority of the current studies involving this group of species focuses on the phylogenetic relationships and the resolution of their taxonomic status (Kaya et al. 2012, Sevgili et al. 2018, Kociński et al. 2021, Borissov et al., 2021, 2023). Besides a clear understanding of the taxonomy, a better understanding of feeding habits, habitat and biology of *Poecilimon* representatives is equally important to gain further knowledge that may aid future conservation efforts.

Kastellorizo, along with its surrounding islets, constitutes the easternmost part of Greece. The flora and fauna of this island is characterized heavily by Anatolian elements, compared to the rest of Greece. Past studies have indicated that the Kastellorizo archipelago hosts an astonishingly high number of invertebrate (Mylonas et al. 2019) and vertebrate organisms (Kalaentzis et al. 2018a) in proportion to its area and has contributed to the documentation of species new to the country (Kalaentzis et al. 2018a, Strachinis et al. 2018), as well as the discovery of known taxa with unique phenotypes (Kalaentzis et al. 2018b, Kazilas et al. 2018). Unless more effort is directed towards additional surveys to study the rich biodiversity of this archipelago, it will evidently remain understudied.

Acknowledgments

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Πρώτη καταγραφή του είδους *Poecilimon inflatus lyciae* (Orthoptera: Tettigoniidae) στην Ελλάδα

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ΠΕΡΙΛΗΨΗ

Σε αυτή την εργασία παρουσιάζουμε την πρώτη καταγραφή του είδους *Poecilimon inflatus lyciae* στην Ελλάδα, (Δωδεκάνησα). Η παρούσα μελέτη συμβάλλει στη διεύρυνση των γνώσεων σχετικά με τη βιοποικιλότητα των νησιών του Αρχιπέλαγους του Καστελλόριζου, η οποία παραμένει σε μεγάλο βαθμό ανεξερεύνητη.

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